UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/727,718	11/30/2000	Julian Van Erlach	XILL-3095	4074

5409 7590 03/07/2003

ARLEN L. OLSEN
SCHMEISER, OLSEN & WATTS
3 LEAR JET LANE
SUITE 201
LATHAM, NY 12110

EXAMINER	
PASS, BARRY	
ART UNIT	**PAPER NUMBER**
3737	

DATE MAILED: 03/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/727,718	ERLACH ET AL.	
	Examiner	Art Unit	
	Barry Pass	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. The examiner's objections to Claims 16 and 17 have been overcome by the applicant's amendment to the claims.

Claim Rejections - 35 USC § 112

2. The examiner's objections to Claims 9 and 14 under the second paragraph of 35 U.S.C. 112 have been overcome by the applicant's amendment to the claims.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-5, 13 and 18 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-5 recite the limitation "the step of inserting." It is unclear if these claims are reciting a new limitation of inserting into a cell or reciting a further limitation to the method step of claim 1 of inserting into a fluid stream.

Claim 13 is not further limiting nor does it provide a further method step.

Claim 18 recites the limitation "the step of selecting" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

4. Claims 1-9 and 11-19 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting, set forth in *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993), as being unpatentable over claims 11-6, 8-10, 12-17 of the inventive entity's copending application no. 09727749 and over claims 1-4, 6, 8, 9, 12-14, 20, 22-24 of the inventive entity's copending application no. 09/727,716. Although not all of the conflicting claims are identical, there is duplication and the remaining claims are not patentably distinct from each other because the broader claims of this application, which teach inserting a nanodevice into a fluid stream in the body, location of the nanodevice intra- or extracellularly, incorporating a microcircuit in the nanodevice, detection of the nanodevice, and facilitating binding of the nanodevice to target molecules anticipate and, in part, duplicate the more specific invention of a nanodevice to monitor a bodily condition disclosed in Application No. 09727749 and the more specific invention of methods for attaching a nanodevice having a size of 500 nm or less to a cell disclosed in Application No. 09/727,716.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in

section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 1, 2, 4, 6, 7 and 15 are rejected under 35 U.S.C. 102(e) as anticipated by Vo-Dinh US 6,219,137 or, in the alternative, under 35 U.S.C. 103(a) as obvious over Vo-Dinh.

Referring to claims 1 and 7 Vo-Dinh discloses in column 2, lines 37-38 delivering nanoprobes inside organisms. Further, Vo-Dinh discloses a nanoprobe having a circuit element (column 3, lines 31-55).

Referring to claim 2 Vo-Dinh discloses in the abstract injecting nanoprobes into cells. In addition, in column 2, lines 37-39 and column 5, lines 65-68, and column 6, lines 1-22, Vo-Dinh discloses methods for delivering nanoprobes inside a cell.

Referring to claim 4 Vo-Dinh discloses in column 5, lines 65-68, and column 6, line 1, inserting nanoprobe materials into a cell by micro injector.

Referring to claim 6 Vo-Dinh discloses in column 2, lines 33-37, a nanoprobe as a detector for toxic chemicals and other biological indicators.

Referring to claim 15 Vo-Dinh discloses in column 2, lines 35-41, delivering a nanoprobe into an organism for extracellular diagnosis. Further, Vo-Dinh discloses a nanoprobe having a circuit element (column 2, lines 42-48 and column 3, lines 23-55).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 6, 7 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Merkle.

Merkle discloses in section 4, last paragraph, nanodevices in the circulatory system that (section 5 second paragraph) circulate freely throughout the body and able to enter individual cells. Inherent to these disclosures is inserting a nanodevice into the circulatory system and said devices located in any or all of the following milieus: blood vessels, interstitial spaces (extracellular) and intracellular. Further, Merkle discloses in section 5 a nanodevice with a small computer able to determine the concentration of specific molecules, and able to receive broadcast instructions. Inherent to a computer are circuit elements and, in particular, integrated circuits containing semiconductor materials. Accordingly, these attributes necessarily include the limitations in the invention disclosed in these claims.

9. Claims 1, 2, 5, 6, 7, 9, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Benjamin et al. US 4,793,825. Benjamin et al. discloses (abstract) a method and system for injecting a microdevice into the vascular system or inserting into a white blood cell (column 15, lines 33-38) using a microdevice carrying circuits for signal processing, the circuits containing

silicon (abstract), phosphorous (column 11, lines 47-50), providing output (abstract), transmitting information (column 16, lines 30-33).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 3 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Benjamin et al.

Benjamin et al. discloses (abstract) a method and system for injecting a microdevice into the vascular system or inserting into a white blood cell (column 15, lines 33-38) using a microdevice carrying circuits for signal processing, the circuits containing silicon (abstract), phosphorous (column 11, lines 47-50), providing output (abstract), transmitting information

(column 16, lines 30-33). Benjamin et al. does not disclose expressly a red blood cell. However, because different cell types were art-recognized equivalents at the time of the invention in regard to methods of inserting into a cell, one of ordinary skill in the art would have found it obvious to substitute one cell type for another for the purpose of inserting a nanoprobe into a cell to monitor intracellular environments.

13. In the alternative, claims 1, 2, 4, 6, 7 and 15 are rejected under 35 U.S.C. 103(a) as obvious over Vo-Dinh.

Referring to claim 1 and 15, Vo-Dinh discloses in column 2, lines 18-41, delivering nanoprobes inside organisms, detecting bodily indicators, and intracellular and extracellular diagnosis by the nanoprobes. Further, Vo-Dinh discloses a nanoprobe having a circuit element (column 2, lines 42-48 and column 3, lines 23-55). Vo-Dinh does not teach delivering the nanoprobe into a fluid stream within a body. However, it would have been obvious to someone of ordinary skill in the art at the time of the invention that the methods disclosed by Vo-Dinh for delivering nanoprobes into an organism for medical diagnosis would include the capability of inserting the nanoprobes into a fluid stream of a body if that stream is in a blood vessel. Also, it is well known in the art that the extracellular environment recited by Vo-Dinh contains streams of fluids. Referring further to claim 15, Vo-Dinh discloses in column 2, lines 35-41, delivering a nanoprobe into an organism for extracellular diagnosis.

Referring to claim 2 Vo-Dinh discloses a method of insertion as recited in claim 1; in the abstract teaches injecting nanoprobes into cells; in column 2, lines 37-39 and column 5, lines 65-68 and column 6, lines 1-22, Vo-Dinh teaches methods for delivering nanoprobes inside a cell.

Referring to claim 4 Vo-Dinh discloses a method of insertion into a cell as recited in claims 1 and 2, and teaches in column 5, lines 65-68 and column 6, line 1 inserting nanoprobe materials into a cell by micro injector.

Referring to claim 6 Vo-Dinh discloses a method of insertion as recited in claim 1 and in column 2, lines 33-37 a nanoprobe as a detector for toxic chemicals and biological indicators.

Referring to claim 7 Vo-Dinh discloses a method of insertion as recited in claim 1. It would have been obvious to someone of ordinary skill in the art at the time of the invention that insertion into organism as described by Vo-Dinh is equivalent to insertion into a biological member as described in the invention.

14. Claims 3, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vo-Dinh. Vo-Dinh discloses a method of insertion into an organism or biological member as recited in claim 1. Further, in column 6, lines 1-22, Vo-Dinh teaches methods for delivering nanoprobes inside a cell. Vo-Dinh meets the limitations of claim 5 except that it does not specify a cell type. However, because different cell types were art-recognized equivalents at the time of the invention in regard to methods of inserting into a cell, one of ordinary skill in the art would have

found it obvious to substitute one cell type for another for the purpose of inserting a nanoprobe into a cell to monitor intracellular environments.

15. Alternatively, claims 3, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vo-Dinh in view of Hadlaczky et al. US 6,077,697. Vo-Dinh discloses a method of insertion into an organism or biological member as recited in claim 1. Further, in column 6, lines 1-22, Vo-Dinh teaches methods for delivering nanoprobes inside a cell as recited in claim 2. Vo-Dinh does not teach cell types. Hadlaczky et al. teach in column 5, lines 28-41, methods of inserting (including microinjection and electroporation) into cells. Hadlaczky et al. also teach cell types including cells from plants, insects, reptiles, amphibians, and mammals, stem cells, lymphocytes and neural cells. Accordingly, it would have been obvious to someone of ordinary skill in the art at the time of the invention that microinjection and other insertion techniques as taught by Vo-Dinh can be used on the cell types recited in the claims of the invention.

16. Claim 9, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merkle in view of Peeters US Patent No. 6123819 or, alternatively, Vo-Dinh in view of Peeters or, alternatively, Benjamin et al. in view of Peeters.

17. Referring to claims 9 and 14 Merkle or, alternatively, Vo-Dinh teaches a nanodevice circulating or stationed in the body as recited in claim 1. Merkle or, alternatively, Vo-Dinh does not teach a substrate made of well-known semiconductor materials gallium arsenide, silicon, silicon oxides or germanium. Peeters, in the abstract, column 1, lines 14-1, and column 4, lines 14-18 and 41-45, teaches nanoelectrode arrays built with substrates comprised of silicon,

germanium, gallium arsenide, or other semiconductors to detect, characterize and quantify single molecules in a solution such as individual proteins, complex protein mixtures, DNA and other molecules for disease or for pre-disease diagnosis. It would have been obvious to one having ordinary skill in the art at the time of the invention was made that a nanodevice or microdevice in a fluid stream in the body having a circuit element to facilitate the detection and diagnosis of bodily conditions as taught by Merkle or Vo-Dinh could incorporate a nanoelectrode array as taught by Peeters, that is capable of quantifying biologically significant molecules in a fluid medium, such as individual proteins, complex protein mixtures, DNA and other molecules, for disease or for pre-disease diagnosis.

18. Referring to claim 11 Merkle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al. teach a nanodevice circulating or stationed in the body as recited in claim 1. Merkle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al. do not teach a (oscillating) resonance type device. Peeters, in column 9, lines 45-46, and column 10, lines 1-19, teaches detection of resonance type nanoelectrode arrays. It would have been obvious to one having ordinary skill in the art at the time of the invention was made that a nanodevice or microdevice in the body to detect and diagnose as taught by Merkle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al. can be provided with any passive or active function within the capabilities of nanoelectrodes and, in particular, can have that array constructed as a resonance device to enable detection.

19. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merkle in view of Østensen et al. US Patent No. 6,375,931 or, alternatively, Vo-Dinh in view of Østensen et al., or, alternatively, Benjamin et al. in view of Østensen et al.

20. Referring to claim 12 Merkle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al. teach a nanodevice inserted and within a body as recited in claim 1. Merkle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al. do not teach detecting the device by magnetic resonance. Østensen et al., teach in column 5, lines 53-67, and column 18, lines 41-45, micro- and nanoparticles circulating in a body and detectable by magnetic resonance for medical diagnosis. It would have been obvious to one having ordinary skill in the art at the time of the invention was made that a nanodevice or microdevice inserted and within in a body as disclosed by Merle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al. can be a device detectable by the magnetic resonance techniques well-known in the art of nuclear magnetic resonance, electron spin resonance, and electron paramagnetic resonance (EPR).

21. Referring to claim 13 and 14 Merkle, or, alternatively, Vo-Dinh, or, alternatively, Benjamin et al. and Østensen et al. teach a nanoprobe detectable by magnetic resonance as recited in claims 1 and 12. Merkle, or, alternatively, Vo-Dinh, or, alternatively, Benjamin et al. and Østensen et al. do not teach molecules or compounds detected by EPR. It would have been obvious to one having ordinary skill in the art at the time of the invention was made that a nanodevice or microdevice inserted and within in a body as disclosed by Merle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al., and able to respond to EPR detection would incorporate substances well-known in the art to respond to EPR detection such as odd electron molecules or any of the well-known paramagnetic substances recited in claim 13, or an organic free radical as recited in claim 14.

22. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merkle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al. as applied to claim 15 above further in view of Schechter et al. US Patent No. 4,120,649.

23. Referring to claim 16 Merkle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al. teach a nanodevice circulating or stationed in the body as recited in claim 15 but do not teach treatment of the circulating or stationary device to prevent immunologic response and prolong tissue retention. Schechter et al. teach in the abstract the treatment of transplants with a compound to improve biological function by reducing antigenicity and prolonging retention by the host. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to treat a nanodevice or microdevice inserted and within in a body as disclosed by Merle or, alternatively, Vo-Dinh or, alternatively, Benjamin et al. with a compound to improve biological function by reducing antigenicity and prolonging retention by a body. Further, in regard to claims 17 and 18, it is well known in the art that organo hydroxyls, including ethylene glycol, reduce immune system response and increase retention by tissues.

24. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merkle or, in the alternative, over Vo-Dinh or, alternatively, Benjamin et al. as applied to claim 15 above further in view of Dustin et al. Patent No. 5,071,964. Merkle or, in the alternative, Vo-Dinh or, alternatively, Benjamin et al. teach a nanodevice circulating in the body but do not teach addition of a lipid anchor, using an organo hydroxyl, to the circulating device to facilitate its attachment to cell membranes. Dustin et al. teach in the abstract the use of lipid anchors to enable the attachment of circulating micelles to a variety of target molecules on a cell. Further, it is well

known in the art that organo hydroxyls (e.g. ethylene glycol) are used as cross-linking molecules that can be modified to have little effect on the chemistry of the molecules being linked. Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide a nanodevice or microdevice in the body with a lipid anchor to promote attachment of the device to a cell and thereby prolong its presence in a body and enhance its diagnostic or therapeutic function.

25. Alternatively, claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merkle or, in the alternative, over Vo-Dinh or, alternatively, Benjamin et al. as applied to claim 15 above further in view of Li et al. Patent No. 6,090,408. Merkle or, in the alternative, Vo-Dinh or, alternatively, Benjamin et al. teach a nanodevice circulating in the body but do not teach addition of a lipid anchor, using an organo hydroxyl, to the circulating device to facilitate its attachment to cell membranes. Li et al. teach in the abstract, column 14, lines 59-67, and column 15, lines 1-5, the use of ethylene glycol as a lipid anchor to enhance the attachment of circulating microparticles (liposomes) to reduce clearance by the reticuloendothelial system and thereby increase the medical effectiveness of the microparticles. Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to provide a nanodevice or microdevice in the body with a lipid anchor to promote attachment of the device to a cell and thereby prolong its presence in a body and enhance its diagnostic or therapeutic function.

Response to Arguments

26. The correction of claim rejections under U.S.C. 112(b) is noted in this action.

27. The withdrawal of claim objections is noted in this action.

28. The applicant's arguments in regard to obviousness type double patenting fail to address the limitations of individual claims. It is clear from reading the claims of the copending applications that they share common steps. Further, the claims of '749 and '716 applications further limit the broader claims of the '718 application. Any method meeting the limitations of the '749 application would necessarily meet those of the instant '718 application as well. At least claims 1 and 6 of '749 are narrower than claim 1 of '718. That is, a method providing a nanodevice with a circuit feature, inserting it in a fluid stream within a body and detecting a body condition, as taught by claims 1 and 6 of '749, necessarily meets the limitations of the method steps of claim 1 of '718 providing a nanodevice with a circuit feature, inserting it in a fluid stream. Similarly, a method with the limitations of claim 11 of '716, providing a nanodevice having a circuit element, of size 500 nm or less, attaching it to a red blood cell in-vivo necessarily meets the broader limitation of claims 1, 2, and 3 of '718 providing a nanodevice having a circuit element, attaching it to a red blood cell in-vivo (inherent to which is a fluid stream).

29. In regard to claim rejections under U.S.C. 102(b) and U.S.C. 103(a) the examiner notes the applicant's objections to Vo-Dinh and to Merkle in regard to the amended claims with the new limitation of a nanodevice or a microdevice with a circuit feature but maintains they are applicable prior art and has added statements to the rejections to further describe a nanodevice having a circuit element. However, the examiner has also introduced, as an alternative to Vo-Dinh and to Merkle, rejections of the amended claims having new limitations based on prior art that was made of record in the previous action (Benjamin et al.).

30. The rejections of claims 1, 2, 6, 7, 9, 14 and 15 under U.S.C. 102(b) are re-addressed in this action.

31. The rejections of claims 1-9 and 11-19 under U.S.C. 103(a) are re-addressed in this action.

32. In regard to the rejections of claims 9, 11, and 14 under U.S.C. 103(a) the examiner notes the applicant's objections to combining Vo-Dinh and Peeters or Merkle and Peeters but maintains there is motivation for one of ordinary skill in the art to combine the teachings and has added statements to the rejections to clarify this. In particular, Vo-Dinh teaches a nanodevice with circuit elements and Peeters teaches a nanoelectrode comprising well-known semiconductor materials used in integrated circuits. It would have been obvious to someone of ordinary skill in the art to combine the teaching of Vo-Dinh, that a nanodevice can contain a circuit element, with the teaching of Peeters, that a nanoelectrode can comprise a circuit comprising well-known semiconductor materials, to conclude that a nanodevice in a fluid stream in a body can comprise well-known semiconductor materials. Further, although Peeters does not explicitly teach using a nanoelectrode in-vivo, Peeters teaches a nanoelectrode small enough to be used in-vivo and used in solutions to determine the presence of biologically significant molecules. Vo-Dinh discloses a nanodevice for diagnosis, with a circuit element, inserted in a blood vessel or interstitially: both of these environments are predominantly hydrous in nature comprising solutions of biological substances. Hence, it would be obvious to someone of ordinary skill in the art to use the nanoelectrode of Peeters in a nanodevice for diagnosis in the predominantly hydrous environment of the body.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry Pass whose telephone number is (703) 305-0726. The examiner can normally be reached on Monday-Friday, 8am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef can be reached on (703) 308-3256. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-0758 for regular communications and (703) 308-0758 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0873.

Barry Pass
March 5, 2003

Marvin M. Lateef
Supervisory Patent Examiner
Group 3700